

## Estimation of Physical Properties of Elements

1. The density of aluminum is  $2.70 \text{ g/cm}^3$  and that of indium is  $7.31 \text{ g/cm}^3$ . Using these two values estimate the density of gallium.

2. The melting points of copper and gold are  $1084^\circ\text{C}$  and  $1337^\circ\text{C}$ , respectively. Estimate the melting point of silver.

3. a. The atomic radii of Rubidium is  $235 \text{ pm}$  and that of sodium is  $190 \text{ pm}$ . Estimate the radius of a potassium atom.

b. The actual radius of the potassium atom is  $220 \text{ pm}$  what is percent error in your calculation?  
(Remember you did this in the lab)

4. The table below lists the melting points of the alkaline-earth metals. Make a graph (there is a grid on the back of this sheet) of melting point versus period number and then use a line of best fit to estimate the melting point of radium.

Element	Melting Point ( $^\circ\text{C}$ )	Period Number
Be	1287	
Mg	650	
Ca	842	
Sr	777	
Ba	727	
Ra	???	

The actual melting point of radium is  $700^\circ\text{C}$ . What is the percent error in your estimation?